

ABSTRACT OF THE DISCLOSURE

In a continuous flow microwave heater for heating a fluid including a microwave source connected to an applicator so as to supply microwave energy to the applicator, the applicator is a rectangular block-like resonator space with opposite front 5 walls and side walls with a microwave in-coupling opening in one of the side walls through which the microwave energy is supplied to the resonator space in which a linearly polarized base mode  $TE_{10}$  is excited. A dielectric tube extends through the resonator space to conduct the fluid to be heated through 10 the applicator, the dielectric tube being so arranged that the microwave energy supplied to the applicator is completely dissipated into the fluid flowing through the dielectric tube.